

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) Cookware made from a multi-layered composite metal sheet having improved uniform thermal transfer properties, said composite sheet comprising a plurality of roll bonded metal layers including at least one core layer of titanium, titanium or titanium alloy, or stainless steel said core layer having a coefficient of thermal conductivity lower than immediately adjacent metal layers of pure aluminum or Alclad aluminum bonded on both sides of said core layer whereby said core layer retards heat flow in a transverse direction to cause said core layer to distribute heat in a lateral direction.

2. (Canceled)

3. (Original) A cooking vessel or griddle plate comprising a multi-layer bonded composite including an inner core layer of titanium or titanium alloy, a layer of pure aluminum or Alclad aluminum bonded to opposed sides of the titanium core layer, a layer of stainless steel bonded to a first of the pure aluminum or Alclad aluminum layers to define a cook surface and a layer of one of an austenitic stainless steel or a ferromagnetic material bonded to a second of the pure aluminum or Alclad aluminum layers to define an outer layer adjacent to a heating source.

4. (Currently Amended) Cookware formed from a multi-layered composite sheet having improved uniform thermal transfer properties, said composite sheet comprising a plurality of roll bonded metal layers including a core layer of ~~a metal selected from the group consisting of titanium, titanium alloy and stainless steel~~, roll bonded on both sides to immediately adjacent layers of pure aluminum or Alclad aluminum and outer layers of stainless steel roll bonded to the layers of pure aluminum or Alclad aluminum, said core layer having a coefficient of thermal conductivity lower than said immediately adjacent aluminum layers whereby said core layer retards heat flow in a transverse direction to cause said core layer to distribute heat in a lateral direction to provide uniform heating across a cook surface of said cookware.

5. (Original) An iron having a sole plate made from a multi-layered composite sheet or plate having improved uniform thermal transfer properties, said composite sheet comprising a plurality of roll bonded metal layers including an inner layer of a metal having a coefficient of thermal conductivity lower than adjacent metal layers whereby said inner layer retards heat flow in a transverse direction to cause said inner layer to distribute heat in a lateral direction.

6. (Currently Amended) A method of making cookware made from a multi-layered composite metal sheet comprising the steps of:

(a) providing a plurality of metal sheets including a core layer comprising at least one sheet ~~selected from the group consisting of titanium, titanium alloy and of stainless steel and at least two~~ first and second sheets selected from the group consisting of pure aluminum and Alclad aluminum facing said stainless steel core layer, a further sheet of a metal selected from the group consisting of aluminum and stainless steel;

(b) preparing said metal sheets by removing an oxide surface layer from surfaces thereof;

(c) stacking said metal sheets ~~in an~~ to form an ordered array such that ~~adjacent sheets having surfaces prepared from step (b) are facing each other and wherein the titanium, titanium alloy or stainless steel sheet is sandwiched between the pure aluminum or Alclad aluminum sheets and forms a core layer of the ordered array~~ the further sheet of aluminum or stainless steel faces one of the pure aluminum or Alclad aluminum sheets;

(d) heating said ordered array to a uniform rolling temperature;

(e) rolling said ordered array to a desired thickness to form a roll bonded composite sheet; and

(f) drawing said roll bonded composite to form cookware of a desired configuration comprising in an ordered array: a cooking surface formed by a layer of pure aluminum or Alclad aluminum, a thermal barrier layer of stainless steel, a layer of pure aluminum or Alclad aluminum and a layer of aluminum or stainless steel forming the outer surface of said cookware.

7. (Previously Presented) The method of claim 6 wherein the metal sheets provided in step (a) include at least two sheets of Alclad aluminum which are stacked in step (c) on opposed sides of said core layer.

8. (Currently Amended) ~~The method of claim 7 wherein the core layer is~~
A method of making cookware made from a multi-layered composite metal sheet comprising the steps of:

(a) providing a plurality of metal sheets including a core layer comprising at least one sheet of titanium or titanium alloy and at least two sheets selected from the group consisting of pure aluminum and Alclad aluminum;

(b) preparing said metal sheets by removing an oxide surface layer from surfaces thereof;

(c) stacking said metal sheets in an ordered array such that adjacent sheets having surfaces prepared from step (b) are facing each other and wherein the titanium or titanium alloy sheet is sandwiched between the pure aluminum or Alclad aluminum sheets and forms a core layer of the ordered array;

(d) heating said ordered array to a rolling temperature;

(e) rolling said ordered array to a desired thickness to form a roll bonded composite sheet; and

(f) drawing said roll bonded composite to form cookware of a desired configuration.

9. (Previously Presented) The method of claim 8 wherein the ordered array of stacking step (c) comprises: a first sheet of stainless steel facing a first sheet of pure aluminum or Alclad aluminum, a core layer of titanium or titanium alloy sheet having a first side facing a first sheet of aluminum or Alclad aluminum, a second sheet of pure aluminum or Alclad aluminum facing a second side of the core layer of titanium or titanium alloy, and a second sheet of stainless steel facing the second sheet of aluminum or Alclad aluminum.

10. (Currently Amended) ~~The method of claim 6 wherein the heating step~~
~~(d) comprises~~ A method of making cookware made from a multi-layered composite metal sheet comprising the steps of:

(a) providing a plurality of metal sheets including a core layer comprising at least one sheet selected from the group consisting of titanium, titanium alloy and stainless steel and at least two sheets selected from the group consisting of pure aluminum and Alclad aluminum;

(b) preparing said metal sheets by removing an oxide surface layer from surfaces thereof;

(c) stacking said metal sheets in an ordered array such that adjacent sheets having surfaces prepared from step (b) are facing each other and wherein the titanium, titanium alloy or stainless steel sheet is sandwiched between the pure aluminum or Alclad aluminum sheets and forms a core layer of the ordered array;

(d) heating the said ordered array in a furnace or oven containing atmospheric oxygen to the to a rolling temperature of between 550° to 600°F.

11. (Previously Presented) A method of making the cookware of claim 10 wherein the rolling step (e) comprises a first rolling reduction of at least 5% to about 10% followed by reheating to about 550°-600°F, rolling a second pass, and thereafter heat treating at about 650°-700°F to improve bonding strength in the multi-layered composite metal sheet.

12. (Original) The method of claim 11, including the step of applying a non-stick layer to a cook surface of the cookware.

13. (Currently Amended) Cookware made from a bonded metal composite comprising:

(a) ~~a core layer consisting of at least one core layer of a metal selected from the group consisting of stainless steel, titanium and titanium alloy; and~~

(b) ~~two outer upper and lower layers consisting of pure aluminum or Alclad aluminum, each layer roll bonded on to upper and lower sides of said core layer; layer;~~

(c) a further layer of stainless steel roll bonded to the upper layer of the pure aluminum or Alclad aluminum to define a cook surface of said cookware; and

(d) a further layer of stainless steel or aluminum roll bonded to the lower layer of pure aluminum, or Alclad aluminum to define an outer surface of said cookware.

14. (Canceled)

15. (Canceled)

16. (Currently Amended) The cookware of claim 13, wherein ~~one of the outer layers of pure aluminum or Alclad aluminum opposite a cook surface~~ the further layer of stainless steel or aluminum defining the outer surface of said cookware is aluminum, wherein said further layer of aluminum is anodized for improved scratch resistance and enhanced appearance.

17. (Currently Amended) The cookware of claim 16, wherein ~~an outer~~ the upper layer of pure aluminum or Alclad aluminum forming said cook surface has a non-stick layer applied thereto.

18. (Currently Amended) ~~The cookware of claim 13, wherein the~~ Cookware made from a bonded metal composite comprising:
(a) a core layer is one consisting of titanium or titanium alloy; and
(b) two outer layers consisting of pure aluminum or Alclad aluminum,
each layer roll bonded to upper and lower sides of said core layer.

19. (New) Cookware made from a bonded metal composite comprising:
(a) a layer of stainless steel at or adjacent a cook surface of the cookware;
(b) a layer of pure aluminum or Alclad aluminum bonded to layer (a);
(c) a layer of stainless steel bonded to layer (b);
(d) a layer of pure aluminum or Alclad aluminum bonded to layer (c); and
(e) a layer of stainless steel bonded to layer (d) defining an outer surface of the cookware,

whereby layer (c) retards heat flow in a transverse direction to cause said layer (c) to distribute heat uniformly in a lateral direction to prevent hot spots from forming on the cook surface and thereby improve cooking performance.

20. (New) The cookware of claim 19 including a non-stick layer applied to layer (a).

21. (New) Cookware made from a bonded metal composite comprising:

- (a) a layer of stainless steel at or adjacent a cook surface of the cookware;
- (b) a layer of pure aluminum or Alclad aluminum bonded to layer (a);
- (c) a layer of stainless steel bonded to layer (b);
- (d) a layer of pure aluminum or Alclad aluminum bonded to layer (c); and
- (e) a layer of aluminum bonded to layer (d) defining an outer surface of the cookware,

whereby layer (c) retards heat flow in a transverse direction to cause said layer (c) to distribute heat uniformly in a lateral direction to prevent hot spots from forming on the cook surface and thereby improve cooking performance.

22. (New) The cookware of claim 21, wherein the layer (e) is of aluminum and is anodized.

23. (New) The cookware of claim 22, wherein the layer (a) of stainless steel has a non-stick surface applied thereto.

24. (New) Cookware made from a bonded metal composite comprising:
- (a) a non-stick layer defining a cook surface of the cookware;
 - (b) a layer of pure aluminum or Alclad aluminum bonded to layer (a);
 - (c) a layer of stainless steel bonded to layer (b);
 - (d) a layer of pure aluminum or Alclad aluminum bonded to layer (c); and
 - (e) a layer of aluminum bonded to layer (d) defining an outer surface of the cookware,

whereby layer (c) retards heat flow in a transverse direction to cause said layer (c) to distribute heat uniformly in a lateral direction to prevent hot spots from forming on the cook surface and thereby improve cooking performance and increase the life of the non-stick layer.

25. (New) The cookware of claim 24, wherein the aluminum layer (e) has an anodized surface.

26. (New) Cookware made from a bonded metal composite:
- (a) a non-stick layer defining a cook surface of the cookware;

(b) a layer of pure aluminum or Alclad aluminum bonded to layer (a);
(c) a layer of stainless steel bonded to layer (b);
(d) a layer of pure aluminum or Alclad aluminum bonded to layer (c); and
(e) a layer of stainless steel bonded to layer (d) defining an outer surface
of the cookware,

whereby layer (c) retards heat flow in a transverse direction to cause said layer (c) to distribute heat uniformly in a lateral direction to prevent hot spots from forming on the cook surface and thereby improve cooking performance and increase the life of the non-stick layer.

27. (New) The cookware of claim 26, wherein the layer (e) is a ferromagnetic stainless steel whereby the cookware may be heated by induction.

28. (New) Cookware made from a multi-layered composite having uniform thermal transfer properties, said multi-layered composite comprising a plurality of roll bonded metal layers including at least one inner layer of a metal having a coefficient of thermal conductivity lower than adjacent metal layers whereby said inner layer retards heat flow in a transverse direction to distribute heat in a lateral direction to thereby eliminate hot spots across a cook surface thereof and improve cooking performance.

29. (New) The cookware of claim 28 which includes a non-stick cook surface, wherein a life of said surface is extended due to the elimination of hot spots across the cook surface.

30. (New) Cookware made from a bonded metal composite comprising:
(a) a layer of pure aluminum or Alclad aluminum;
(b) a layer of stainless steel bonded to layer (a);
(c) a layer of pure aluminum or Alclad aluminum bonded to layer (b);
(d) a layer of stainless steel bonded to layer (c); and
(e) a layer of pure aluminum or Alclad aluminum bonded to layer (d).

31. (New) The cookware of claim 30 wherein layer (a) has a non-stick surface applied thereto.

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32. (New) The cookware of claim 30 wherein layer (e) has an anodized surface.